POLICY RESEARCH WORKING PAPER 2142

Adjusting to Trade Policy Reform

Steven J. Matusz
David Tarr

A survey of more than 50 empirical papers shows that the adjustment costs of trade liberalization are small relative to the benefits. Moreover, manufacturing employment typically increases with trade liberalization. The limited data suggest that trade liberalization reduces poverty.

The World Bank
Development Research Group
Trade
July 1999

Summary findings

Virtually all of the studies that quantify the adjustment costs of trade liberalization relative to the benefits point to the conclusion that adjustment costs are small in relation to the benefits of trade liberalization.

The explanation for low adjustment costs is that:

- These costs are typically short term and end when workers find a job, but the benefits grow as the economy does.
- Unemployment doesn't last long, especially where workers' pay was not substantial in the original job.
- Normal labor turnover often exceeds job displacement from trade liberalization.

Moreover, studies that examine the impact of trade liberalization on employment in developing countries find there is little decline — and usually an increase — in manufacturing employment in developing countries a year after trade liberalization, for three reasons:

- Developing countries tend to have comparative advantage in labor-intensive industries, and trade liberalization tends to favor labor.
- Interindustry shifts occur after trade liberalization, which minimizes the dislocation of factors of production.
- In many industries normal labor turnover exceeds dislocation from trade liberalization, so downsizing, when necessary, can be accomplished without much forced unemployment.

Matusz and Tarr recommend a uniform tariff to minimize special-interest lobbying for protection since it diffuses the benefits of protection.

This paper — a product of Trade, Development Research Group — is part of a larger effort in the group to examine how trade liberalization affects growth and poverty reduction. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Lili Tabada, room MC3-333, telephone 202-473-6896, fax 202-522-1159, Internet address ltabada@worldbank.org. Policy Research Working Papers are also posted on the Web at http://www.worldbank.org/html/dec/Publications/Workpapers/home.html. David Tarr may be contacted at dtarr@worldbank.org. July 1999. (58 pages)

ADJUSTING TO TRADE POLICY REFORM

Steven J. Matusz and David Tarr

We would like to thank Milan Brahmbhatt, Uri Dadush, Anne Krueger, Costas Michalopoulos, Martin Rama, Julie Schaffner, L. Alan Winters, and seminar participants at the conference on Economic Policy Reform at Stanford for thoughtful comments on earlier versions of this paper, and Maria Kasilag for logistical support.

I. Introduction

Economic research has rather well documented the long-term benefits from improved resource allocation and efficiency that follow from trade reform. And, although causation remains an issue, research has shown strong and consistent correlation between trade reform and growth. Despite this evidence of improved incomes from trade reform, some policy makers are reluctant to implement trade reform due to fear of excessive adjustment costs. Policy makers fears may be based in part on political dynamics of reform (politicians in power fear they will incur the anger of the owners of displaced resources while the benefits may accrue in later years), but may also be based in part on the fact that there is much less written and known on the subject of the nature, magnitude, and duration of adjustment costs In this paper we attempt to fill the void in the literature by surveying the evidence on the adjustment costs of trade liberalization, and placing those estimates of adjustment costs in perspective relative to the gains from trade liberalization.

The outline of the paper is as follows: in section II we first define adjustment costs, distinguishing social and private costs of adjustment, and then develop a model for thinking about adjustment costs. We survey the estimates of adjustment costs, both social and private, as well as studies of the employment effects of trade liberalization in section III. In section IV, we examine the impact of trade liberalization on macro-stability. In section V, we provide suggestions for future research, focusing on means of addressing opposition to reform as well as reducing the adjustment costs. Our detailed summary and policy conclusions are in section VI.

Briefly, our results are as follows: while we find that it is necessary to apply caveats to most of the more than 50 studies we survey, virtually all the studies find that adjustment costs are very small in relation to the benefits of trade liberalization. And those studies that focused on

manufacturing employment in developing countries found that it had typically increased within one year after liberalization. Collectively, the weight of so many studies of various types, all pointing in more or less the same direction, makes it difficult to avoid the conclusion that adjustment costs are relatively very small relative to the benefits of trade liberalization and after the economy has one year to adjust to the trade liberalization, we should expect to see an increase in manufacturing employment.

The explanation for the low adjustment costs in relation to the benefits is as follows: (1) most importantly, adjustment costs are typically short term and terminate when workers find a job, while the benefits of trade reform can be expected to grow with the economy; (2) estimates of the duration of unemployment for workers in most industries are not high, especially where workers were not earning substantial rents in the original job; (3) in many industries normal labor turnover exceeds dislocation from trade liberalization, so that downsizing where necessary could be accomplished without much forced unemployment; and (4) it has been observed that a significant portion of the resource reallocation after trade liberalization was accomplished through inter-industry shifts, which minimized the dislocation of factors of production. In addition, developing countries would be expected to have comparative advantage in labor intensive industries, so trade liberalization should favor labor. This may explain why manufacturing employment has typically increased after trade liberalization.

II. Defining and Modeling Adjustment Costs

A. Defining Adjustment Costs

One of the basic tenants in economics is that a regime of liberal international trade leads to a more efficient allocation of resources and higher level of economic well being than does a regime involving artificial distortions of trade. There now exists a voluminous amount of empirical research supporting this claim.[1] Although there are a number of studies which we survey in this paper, by comparison, researchers have spent relatively little time identifying and quantifying the potential adjustment costs that may be associated with a movement away from a regime of distorted trade (the status quo) to a more liberal regime.

For purposes of this paper, we define adjustment costs as encompassing a wide variety of potentially disadvantageous short-run outcomes that might result from trade liberalization. These outcomes may include a reduction in employment and output, the loss of industry-specific and firm-specific human capital, and macroeconomic instability resulting from balance of payments difficulties or reductions in government revenue. In analyzing these costs, it is important to distinguish between social and private costs. While the social costs of adjustment are relevant for considering the aggregate welfare effects of trade reform, it is the distribution of private costs within society that form the basis of political opposition to reform.[2]

Even when the social benefits of trade liberalization outweigh the social costs, the existence of private costs can easily generate enough political opposition to block any reforms. The problem is especially evident when protection or liberalization in a particular industry is considered. Representatives of the industry in question will lobby for protection because the gains are concentrated in their industry. On the other hand, the consumers of the product who lose from protection are dispersed throughout the economy. The consumers would like to see

lobbying against the protection but there is a free rider problem. Individual consumers do not lose enough from the protection to induce them to expend resources to lobby against the protection--rather they would like other consumers to lobby against the protection. A succession of particular industries lobbying for protection may then result in a protected overall trade regime. See Stigler (1971) for an elaboration.

Fernandez and Rodrik (1991) have extended this argument by noting even those who will gain from trade reform may be unwilling to support reform or even oppose it. The problem is that it is not possible to identify with certainty all of the potential beneficiaries of reform. For example, some workers currently employed in import-competing industries may be able to make a smooth transition to employment in export industries once trade is liberalized. Those workers who do possess the skills to make this transition are likely to earn higher wages. While it may be possible to argue that a certain percentage of the labor force will make this transition, it is impossible to precisely identify the actual individuals who would benefit. Therefore workers in import-competing industries may rationally expect that there is some chance that they will be better off under reform but there is also some chance that they will be worse off. It is not difficult to imagine many situations where the downside risk for these workers outweighs the upside potential.

Knowledge of the distribution of the private costs and benefits associated with trade reform is relevant because such knowledge might guide the implementation of contemporaneous policies that might diffuse some of the political opposition that may arise. One such policy is a uniform tariff, long favored by the IMF and the World Bank as a means of diffusing political support for protection. Panagariya and Rodrik (1993) have formalized the argument. They note that a key advantage of a uniform tariff structure is that it will minimize lobbying by special

interests for protection because it diffuses the benefits of protection. If the only way protection can be increased is by increasing protection for all industries, lobbying for protection then yields only dispersed benefits as well as costs. Then a uniform tariff creates a free-rider problem for the interests seeking protection.

Knowledge of the distribution of private costs is also useful because of genuine concerns for an equitable distribution of income. On the other hand, the social costs and benefits are the relevant measures to use when contemplating the aggregate welfare effect of trade reform. Obviously, reforms should not be undertaken if the costs outweigh the benefits. Even in situations where the benefits of reform are a little larger than the costs, it may not be beneficial to liberalize since policies designed to spread the burden of adjustment by redistributing income are likely to be distortionary and entail a social cost of their own. This is true whether these policies are motivated by political expediency or by concerns for equity. The probability of being able to implement redistributive policies in a fashion that generates political support for reform and minimizes the adverse impact on the distribution of income grows as the ratio of social benefits to social costs increases.

Typically policy discussions focus on how to minimize the adjustment costs. But during a period of unemployment, temporarily unemployed workers acquire information about their best job prospects. As numerous "search" models have formalized, in any period each worker should continue to search for a job rather than take an existing offer if his or her expectation of an improved job offer results in sufficiently increased lifetime earnings to compensate for the lost income of being unemployed during that period.[3] Zero unemployment implies that vacancies are immediately filled and that workers spend no time searching. The lack of time spent searching will result in lost lifetime earnings and workers choosing jobs where the value of their marginal

product is lower than in alternate positions. A situation of zero unemployment or zero adjustment costs is not likely to be socially optimal.

B. Employment and Output Loss: A Micro-theoretic Framework.

The general equilibrium measurement of the short-run output loss resulting from trade liberalization can be visualized by using the simple diagrammatic methods that are generally used to demonstrate the general equilibrium benefits of trade liberalization.[4] Consider a small country that produces exportables and importables. Assume that all consumers have the same preferences so that social welfare can be represented by a single set of indifference curves. The production possibilities curve for this economy is shown in Figure 1. At the initial (distorted) equilibrium, production takes place at point S_d, consumption at point C_d. Moving to free trade causes the economy to slide up along its production possibilities curve to point S_{FT}. Consumption now occurs at point C_{FT}. The distance B represents the welfare gain, measured in terms of exportables. This is the amount of income that could be taken away from consumers who are faced with free trade prices and still leave them just as well off as they were in the distorted equilibrium.

To measure the costs of adjustment, Neary (1982) suggests looking at the difference along the adjustment path between the actual level of income and the level of income that would be attained once all adjustments have been undertaken. Consider Figure 2, where it is assumed for simplicity that liberalization first causes all resources that are released from the importables sector to become unemployed during the first period after liberalization, and then fully employed thereafter. In this case, the adjustment cost is measured as distance C_1. It is possible for C_1 to exceed B. However, the correct comparison is between a benefit *stream* of B continuing into the infinite future and a one time adjustment cost of C_1. More specifically, the discounted benefits

of liberalization exceed the discounted costs if and only if $\frac{B}{r} > C_1$, where r is the social rate of discount.

The time profile of adjustment used in this example is extreme. Data on adjustment costs indicate that adjustment occurs over several periods with adjustment costs progressively declining, i.e., $C_{t+1} < C_t$, where C_t is the adjustment cost during period t. This follows since resources are likely to be gradually re-employed. On the other hand, the benefits of liberalization do not decline and are likely to grow over time as the economy grows. Letting B_t represent the benefits during period t, the discounted benefits of trade reform exceed the discounted adjustment costs if and only if $\sum_{t=1}^{\infty} \frac{B_t}{(1+r)^{t-1}} > \sum_{t=1}^{\infty} \frac{C_t}{(1+r)^{t-1}}$.

Those who have attempted empirical measurement of the costs and benefits of trade liberalization have generally taken into account both discounting and the time-dependent nature of the costs and benefits.

It is necessary to understand the dynamics of the labor market in order to gain deeper insight into the short-run employment effects of trade reform. Figure 3, which schematically illustrates the various labor market flows, provides the basis for such understanding.

The labor market illustrated in Figure 3 is greatly simplified by assuming that at any point in time a worker can either be employed in the export sector, employed in the import-competing sector, unemployed, or not in the labor force. The arrows in Figure 3 represent flows between sectors. For example, the arrow pointing downward between the boxes labeled "Export Sector" and "Unemployment" represents the flow of workers who are laid off from firms in the export sector and become unemployed. The corresponding arrow that points upward represents the flow of workers who leave unemployment to take jobs in the export sector.

Assuming no change in the size of the labor force, a steady-state equilibrium will be characterized by a situation where each flow between any two states (for example, the flow of workers from the export sector into unemployment) is just matched by a flow of equal magnitude, but in the opposite direction (a flow of workers out of unemployment into the export sector). In this sort of equilibrium, the size of each sector remains unchanged, as does the size of the workforce that is unemployed.

Trade reform results in an increased demand for workers by firms in the export sector combined with a decrease in labor demand by workers in the import-competing sector. It is known (see Roberts and Tybout, 1997) that there are fixed costs in entering export markets which create a kind of inertia since firms in the export sector may be slow to respond to trade reforms until they are convinced they will stick, or until the incentives to export change by more than a marginal amount, resulting in a slow response to trade reforms in the export sector. As the import-competing sector contracts, the arrows originating from the box labeled "Import-Competing Sector" and pointing outward swell with workers who are laid off. Some of these workers may elect to retire, exiting the labor force entirely. Others will become unemployed while searching for new employment. At the same time, all arrows pointing toward the box labeled "Import-Competing Sector" shrink in size since few firms in this sector will be hiring.[5] This will have the temporary effect of swelling the number of unemployed workers and possibly also the number of workers out of the labor force. This temporary reduction in aggregate employment (and the corresponding output loss) is the true social cost of adjustment.[6] Relating this to the discussion underlying Figures 1 and 2, this cost can be measured by evaluating the level of output that will be produced once the export sector expands to its steady-state size and

all adjustments have been made and subtracting the value of output that is produced subsequent to the liberalization but prior to the time when all adjustments have been made.

The size of adjustment costs is determined by the speed with which workers make the transition from one state to another (for example, from unemployment to employment in the import competing sector). In principle, transition rates are functions of a variety of variables such as the demographics of the population, the distribution of skills, the degree of governmental support for unemployed workers, laws restricting involuntary separations, the degree of unionization, the share of economic activity undertaken by state-owned enterprises, and so on.

III. Employment and Output Loss: The Evidence

A. Trade Reform and Employment in Developing Countries

Unskilled labor is relatively abundant in developing countries. In the context of the Heckscher-Ohlin model, trade reform can be expected to increase the overall demand for such labor in the long run. This follows since such countries have a comparative advantage in goods that use unskilled labor intensively. Removing policies that favor import-competing sectors at the expense of (labor-intensive) export sectors ultimately results in an expansion of the latter and contraction of the former. Any increase in the demand for unskilled labor results in a combination of higher wages and employment for this segment of the population.[7, 8]

There is little hard evidence relating trade reform to overall labor demand. However three recent studies suggest that trade reform has had the expected positive impact on employment in a variety of countries. First, a retrospective study of trade reform in 19 countries by Papageorgiou, Choksi, and Michaely (1990) concludes that trade liberalization did not generally result in decreased employment even in the short run. The evidence that they present is reproduced here as Table 1. They report employment data prior to liberalization, during liberalization and one year after liberalization. Compared with the pre-liberalization period, manufacturing employment was larger one year subsequent to the completion of liberalization in all but one of the twelve countries for which data was reported. In fact, manufacturing employment was higher in twelve of thirteen cases during the liberalization period compared with the levels registered prior to liberalization.

Two caveats to the Papageorgiou, Choksi, Michaely data is that they only provide information for manufacturing employment, and they do not measure underemployment. This may mask changes in employment (either positive or negative) that may have occurred

elsewhere in the economy or in underemployment.[9] On the other hand, policy makers are often concerned about the possibility that liberalization may lead to "deindustrialization." The employment trends reported in Table 1 do not lend support to this hypothesis. Moreover, we note that in the case of Chile, which is the one reported case where manufacturing employment fell, employment in agriculture increased.

In a separate study, Parker et al. (1995) examined employment growth in micro and small scale enterprises (MSE) subsequent to episodes of reform in Ghana, Malawi, Mali, Senegal, and Tanzania.[10] Their findings, reported in Table 2, indicate that annual employment growth among existing MSEs was strong subsequent to reform implementation.[11] Harrison and Revenga (1995) studied sixteen countries that underwent significant liberalization in the past decade and a half. They are able to track total employment growth for six of these countries. Their data is reproduced in Table 3. Employment continued to grow throughout the period prior to, during, and after reform in Costa Rica, Peru, and Uruguay. The same cannot be said for the transitional economies of Eastern Europe. As Harrison and Revenga note, however, Czechoslovakia, Poland, and Romania were undergoing significant reforms that went well beyond trade liberalization, and the problem for many of the transition economies was devise policies to halt the steep decline in output. In fact, the World Bank's World Development Report (1996) showed that output losses have been the smallest for those countries where broad liberalization has been the greatest.

Given the difficulty of controlling for all factors, the data in Tables 1 through 3 do not suggest what the level of employment (or rate growth of employment, as in the case of Table 2) would have been had there been no liberalization nor is it possible to infer from this data alone what the level of output would have been immediately following liberalization compared with

the level of output obtained subsequent to all adjustments. That is, it is conceivable that employment would have grown at an even faster pace had trade not been liberalized. It is also conceivable that employment would have stagnated in the absence of reforms. It is impossible to say what might have been without properly controlling for other factors that may have impacted employment. Since there is no reason to believe that the data are biased, however, the data are consistent with the expectation that reform leads to greater employment in the long run.

B. Formal Studies of Adjustment Costs

A number of researchers have attempted to measure explicitly the adjustment costs that can be expected to result from trade liberalization. Virtually all of these studies pertain to developed countries, but they may provide some insight regarding the costs borne by developing countries as well. On the one hand, formal labor markets in developing countries may be less flexible than in industrial countries, suggesting adjustment costs would be higher. On the other hand, a higher percentage of employment in developing countries is in agriculture and in informal labor markets which are very flexible—implying lower adjustment costs. Thus, there is no clear bias in extrapolating developed country results to developing countries. Moreover, work by Hoddinott (1996) on labor markets in Cote d'Ivoire finds the existence of an inverse relationship between wages and unemployment that is remarkably similar to relationships found by Blanchflower and Oswald (1995) for a large sample of developed countries. This similarity suggests that labor markets in at least one developing country behave in roughly the same way as labor markets in developed countries, and therefore studies of adjustment costs for developed countries may have relevance for developing country experience.

In the first study of its kind, Magee (1972) considered the costs and benefits that one could expect if the United States completely liberalized its trade with the rest of the world. In

conducting his study, Magee explicitly accounted for the fact that the benefits of liberalization are permanent while the adjustment costs are temporary. In computing adjustment costs, Magee forecast the number of workers that would become unemployed due to the reductions in import barriers and then multiplied by their average wage. He adjusted for the expected duration of unemployment and assumed that all adjustments would be completed within five years. Using alternative discount rates, he was then able to estimate the present discounted value of adjustment costs and compare them with the standard efficiency gains due to liberalization. The benefit-cost ratios calculated from Magee's work are reported in Table 4.

Based on the figures reported in Table 4, after only one year U.S. trade reform would create 5.7 dollars worth of benefits measured in terms of efficiency gains for every dollar of adjustment costs. By the end of five years, trade reform would result in more than 8 dollars of benefit for every dollar of adjustment cost. Even when the future is heavily discounted, by the end of the fifteenth year the reforms generate more than 19 dollars of benefit for every dollar of adjustment cost. The final line of Table 4 reports benefit-cost ratios where benefits are summed up over the infinite future.

Magee's estimates are very rough and do not account for the costs of capital equipment that may be idled as a result of reduced import barriers. In an attempt to obtain more precise measures of adjustment costs that included the costs of idle capital, Baldwin et al. (1980) estimated the potential impact on the U.S. economy of a 50 percent multilateral tariff reduction. While Magee aggregated all trade into a few small categories, Baldwin et al. studied 367 distinct sectors. Like Magee, Baldwin et al. estimated the changes in employment that would result from the tariff reduction and valued this change in employment at an appropriate wage.[12] In addition, Baldwin et al. assumed that every one percent contraction in industry output is accompanied by a

one percent contraction in capital utilization.[13] They noted that if capital equipment in general has a useful life of ten years, then one percent of the capital stock wears out every 1.2 months. The authors of this study then went on to assume that any capital idled by trade reform would be the oldest capital equipment. Therefore, if one percent of the capital stock was idled by trade reform, the maximum income loss would be equivalent to what that capital could have produced in 1.2 months.

In total, the authors estimated that every dollar of adjustment costs brings with it approximately 2.4 dollars of benefits in the form of efficiency gains after just one year. Using a ten percent discount rate and assuming that all adjustments are completed within one year of policy implementation, they calculated that benefits outweigh costs by a ratio of more than twenty four to one. The authors concluded that even though their study was imperfect, the estimated benefits of liberalization are so much larger than the estimated adjustment costs that it would be implausible for any reasonable variations on their analysis to yield opposite results.[14]

While Baldwin et al. found a very large ratio of benefits to costs, they also found that the costs are concentrated among a few industries. Specifically, industries with the largest declines in employment include Food Utensils and Pottery (20.6%), Rubber Footwear (13.1%), Artificial Flowers (11.3%), and Pottery Products (9.7%).[15] More generally, the authors calculated that a 50 percent multilateral tariff reduction would reduce employment by one percent or more in fewer than ten percent of the industries studied.[16]

A number of authors have attempted to quantify the potential economy-wide employment effects resulting from trade reform for countries other than the United States. One such study by Dixon et al. explored the consequences of a 25 percent reduction in Australia's level of protection. In particular, the authors of this study asked how trade reform could be expected to

alter the occupational makeup of the economy. They explored several different scenarios and conclude that a 25 percent liberalization might force anywhere from two percent to as much as fourteen percent of the labor force to change occupations within two years after the implementation of the policy.[17] By way of comparison, the authors of this study estimated that between 1961 and 1976, anywhere from 32 percent to 142 percent of the labor force changed occupations during a given two year period.

Unlike Magee (1972) and Baldwin, et al. (1980), the authors of this study made no attempt to quantify the potential efficiency gains from liberalization, nor did they attempt to quantify the value of lost output experienced when workers who are forced to switch occupations find themselves temporarily unemployed. Rather they implied that the labor market disruption associated with trade reform is no larger in magnitude than the disruptions that occur with the natural ebb and flow of the economy.

De Melo and Roland-Holst (1994) carried out one of the only studies relating trade reform to potential employment changes in a developing country. This study of the Uruguayan economy differs from the studies of the U.S. and Australian economies discussed above because of the recognition that much of the protection afforded domestic industries in developing countries is in the form of administered protection. This form of protection generates strong incentives for rent-seeking activities leading to welfare costs of protection that are larger than the standard efficiency-losses. Based on their analysis, the authors concluded that elimination of tariffs and administered protection along with the elimination of all rent seeking activity would likely result in the need for approximately five percent of the labor force to relocate. Since the authors did not estimate the time that relocating workers would spend unemployed nor did they estimate the value of production that would be lost during this transition period, it is not possible

to obtain a direct measure of adjustment costs to weigh against their measure of the benefits of reform.[18] The difficulty of quantifying the costs of this labor shift is further compounded by the fact that the authors failed to compare this figure with the normal amount of job turnover.

All of the authors of the studies mentioned to this point attempted to quantify the adjustments resulting from economy-wide trade reform. By contrast, a few authors have focused their attention on individual industries. For example, de Melo and Tarr (1990) investigated the efficiency gains and employment adjustments that would follow from a removal of quantitative restrictions on U.S. imports of textiles, steel, and automobiles.[19] According to their analysis, these reforms would generate the need for fewer than one quarter of one percent of the labor force to relocate. To measure the costs borne by the relocating workers, the authors of this study used evidence from Jacobson (1978) to argue that these workers experience some loss of earnings for approximately six years after displacement. They used this information to calculate the ratio of the present discounted value of the benefits of liberalization to the costs of worker displacement. They estimated that gains to the U.S. economy from liberalization are approximately 28 dollars for every dollar of cost.[20]

In a series of nine partial equilibrium case studies, Morkre and Tarr (1980) and Tarr and Morkre (1984) examined many of the important cases of U.S. protection applied to specific industries. In general, these studies found that the benefits of trade liberalization vastly exceeded the adjustment costs. For example, Morkre and Tarr (1980) estimated the benefits and costs of removal of the sugar quotas, footwear quotas and tariffs on textile and apparel products by the U.S. They estimated that removal of sugar quotas by the U.S. would result in about 16 dollars of benefits for every dollar of unemployment costs. Liberalization of footwear quotas, and textiles and apparel tariffs would produce benefit-cost ratios of about 68 and 57, respectively. Tarr and

Morkre (1984) estimated that, depending on elasticities, the removal of quotas in textiles and apparel would result in between 7 and 19 dollars of benefits for every dollar of unemployment costs.

Takacs and Winters (1991) carefully studied the British footwear industry with the intent of projecting the effects of eliminating quantitative restrictions on imports. They made use of the fact that there exists a natural turnover of employment within the industry. The authors assume that those workers who are displaced by trade liberalization become re-employed in the shoe industry when other workers voluntarily leave employment. For example, almost 17 percent of the employees at two large shoe manufacturers voluntarily left employment each year between 1984 and 1986. If workers displaced due to trade liberalization are the first claimants on new job openings, then the authors estimated that workers displaced due to trade liberalization would become re-employed within seven weeks.[21] The authors went on to calculate the standard efficiency gain from liberalization for purposes of comparing this gain with the value of lost employment, where the value of lost employment was calculated at the workers' pre-unemployment wage.[22] Doing so, they calculated a benefit-cost ratio of 153 after just one year.[23] Even if the natural turnover rate is as low as eight percent, the adjustment period is only 14 weeks and abolition of quantitative restrictions can still can still be expected to generate more than eighty dollars of benefit for every dollar of cost after just one year.[24]

Using data on industry-specific durations of unemployment reported by Bale (1973), Mutti (1978) compared the benefits of trade liberalization for five U.S. industries with the adjustment costs. In order of increasing benefit-cost ratios (which are indicated in parentheses), the industries studied are Iron and Steel (1.3), Machine Tools (2.8), Industrial Chemicals (5.2), Motor Vehicles (5.2), and Electrical Machinery (24.4). In calculating these figures, Mutti used a

discount rate of ten percent and accounted for the persistence and growth of benefits over time.[25] By comparison with the studies mentioned earlier, these benefit-cost ratios are quite small. This can be attributed to the rather lengthy durations of unemployment that Mutti assumed in his analysis.

In summary, a variety of industry and country studies have been undertaken to try to quantify the magnitude of the adjustments that could be expected to accompany trade reform. In virtually every instance the estimated degree of adjustment is relatively small compared with the natural dynamics of the labor force. In studies where such comparisons are possible, it seems to be the case that each dollar of adjustment cost is associated with several dollars worth of efficiency gains. It is worth bearing in mind that adjustment costs are the largest in the period immediately after the implementation of reforms, disappearing after a period of one to five years. By contrast, the efficiency gains of liberalization grow over time and continue indefinitely.

C. Labor Market Dynamics in Developing Countries

The costs of adjusting to trade reform are clearly minimized when labor and capital markets are highly flexible so that the transition probabilities out of unemployment are relatively high. Most of the studies described thus far have explicitly accounted for the speed of adjustment by incorporating data on unemployment duration or rates of job turnover. Unfortunately, these measures are not typically available for most developing countries. The evidence that is available seems to indicate a wide variety of country-specific rates. For example, Haltiwanger and Singh (1996) reported on the labor market experiences of 60,000 civil service workers who were retrenched by the Government of Ghana between 1987 and 1992. A survey of these workers revealed that 10 percent had quit the labor force with 97 percent of the remaining workers finding new employment within two years.[26] At the other end of the

spectrum, the average duration of unemployment was 50 months for the 1.7 million workers (nearly 9 percent of the labor force) dismissed from Hungarian state enterprises between 1990 and 1992.[27]

In the absence of readily available data on labor markets, it may be possible to obtain some sense of the speed with which adjustment can take place in developing countries by again looking at the dynamic role played by micro and small-scale enterprises. According to Liedholm and Meade (1995), MSEs account for a significant portion of employment in developing countries. While the majority of such enterprises consist of a single employee or are family owned and operated, MSEs hire a significant number of paid employees. Some characteristics of these enterprises are reproduced in Table 5.

According to Liedholm and Meade, MSEs are highly dynamic. In particular, they report that the annual rate at which new MSEs were created in the sample of countries that they examined was generally in excess of twenty percent. This is a substantially higher start-up rate than found in industrialized countries.[28] Their data is reproduced in Table 6. The very high start-up rates suggest that entrepreneurs in these countries are quick to respond to new opportunities, making speedy adjustment to trade reform quite likely. Looked at another way, the magnitude of dislocation caused by liberalization is unlikely to be significantly larger than dislocations associated with the everyday workings of the economy.

D. Private Adjustment Costs

As mentioned earlier, research seems to suggest that significant trade liberalization is likely to result in a relatively small dislocation of workers and a correspondingly small cost for society. The private cost borne by a dislocated worker, however, may be a significant fraction of his lifetime earnings. Available research tends to show that the private losses borne by individual

workers depend heavily on worker characteristics. On the one hand there are workers who have substantial specific human capital accumulated in the industry or firm, or workers who are earning substantial wage premia (possibly due to union power or high government wage scales or efficiency wages). These workers tend to lose a lot as a result of displacement. On the other hand, workers with little specific human capital or who are not earning wage premia lose little or nothing from displacement, depending on the industry.

For example, Jacobson, et al. (1993a, 1993b) studied a sample of American workers who were displaced from their jobs between 1980 and 1986.[29] They found that even as long as five years after the dislocation, *workers who had long job tenure* with their previous employers were earning on average twenty five percent less than they earned in 1979.[30] In a similar study, Rama and MacIsaac (1996) found that after 15 months, employees displaced from their jobs at the Ecuadorian Central Bank (BCE) in 1994 were on average earning only 55 percent of their pre-displacement income. Rama and MacIsaac argued that the earnings loss is unlikely to shrink to the 25 percent figure reported by Jacobsen et al. because there was no indication in the data of any recovery of income even after 15 months despite a low overall unemployment rate. In addition, they assert that pay at the BCE was out of line with salaries in the private sector, making it difficult for displaced employees to find similar salaries in the private sector. In a separate study, Tansel (1996) found that Turkish workers laid off from privatized cement firms experienced earnings losses of 61 percent. Earnings losses for workers laid off from the state-owned petrochemicals firm amounted to 57 percent.

By contrast, Jacobsen (1978) found that two years after displacement workers in low wage industries actually earned more income than their non-displaced counterparts in the original industry. Moreover, he found that six years after displacement, earnings losses had

vanished for all industries, not just for low wage industries. The difference in the results between the Jacobsen studies is explained by the fact that the 1993 studies restrict the sample to workers with long job tenure and who are therefore likely to have accumulated specific human capital or earn wage premia. His 1978, study, however, is a broad sample of short, medium and long tenure workers who have on average much less specific human capital. Similarly, Orazem, Vodopivec, and Wu (1995) found that more than two thirds of displaced Slovenian workers who found new jobs actually earned wages higher than their predisplacement wages. [31] Mills and Sahn (1995) found that of the public-sector workers retrenched in Guinea who were able to find new jobs, more than half had increased earnings. However, the average duration of unemployment for this group was approximately two and one half years,[32] and thirty percent of public-sector workers who were retrenched between 1985 and 1988 were still unemployed as of 1992.

It is important to recognize that the private costs borne by dislocated workers and entrepreneurs need not coincide, even in the aggregate, with the social costs identified earlier in this paper. For example, some workers may enjoy a high wage due to distortions in the labor market. These distortions may include the presence of excessive union power or the existence of inflexible government wage scales. In such instances, there is a substantial private cost but no social cost (except perhaps that associated with a transitional period of unemployment) as competitive pressures from trade reform force a reduction in the size of distorted sectors. Similarly, liberalization of the trading regime might induce changes in the values that an economy places on various forms of human capital. Workers who have accumulated significant amounts of firm-specific or sector-specific human capital may suffer a substantial (private) loss as the demand for their skills declines.[33] In any event, this is no more a social cost than is the change in *any* price that is induced by changing market conditions.

E. Retraining Programs to Reduce Adjustment Costs

Programs designed to retrain workers to make them more employable generate additional social costs to the extent that they require the use of resources that could have been used in other productive activities. However, such programs may reduce the social (and private) costs associated with adjustment if they have the desired effect of shortening spells of unemployment. A recent study of retraining programs in Hungary found that workers who participated had a slightly higher chance of becoming re-employed compared with those who did not participate.[34] Furthermore, the wages of participants upon re-employment were slightly higher compared with those of non-participants who became re-employed. Perhaps the biggest difference between participants and non-participants was that the former obtained jobs that had longer durations than the latter, indicating the potential for the retraining program to have a significantly positive effect on lifetime income of participants. However, it is not clear that the benefits of the program were sufficient to justify the costs.

Another program that provides government sponsored training can be found in Mexico. The PROBECAT program provides short-term skills training to unemployed workers. An evaluation of this program found that it was effective in reducing the duration of unemployment for participants who had prior work experience and it helped raise the earnings of adult males who participated. The program, however, had no effect on the fate of trainees with no prior work experience or women who were reentering the work force.[35]

The United States has been providing trade adjustment assistance (TAA) to workers displaced by international trade since 1962. The US program provides both monetary compensation (called Trade Readjustment Allowances, TRA) and retraining. In the early years of

the program, it was found that income support was typically provided to workers who were not permanently separated from their employers, i.e., the program was not well targeted (Corson and Nicholson, 1981). However, changes in the design and monitoring of the program in 1982 and 1988 have resulted in targeting the payments to the intended recipients. U.S. recipients of TAA now are typically permanently separated from their employer and also experience greater difficulty in gaining reemployment than do typical recipients of unemployment compensation (Decker and Corson, 1995). Following the changes of 1988, participation in an approved retraining program is a requirement to receive monetary compensation (TRA), unless a waiver is obtained. Evaluation of the experience of trade displaced workers reveals that participation in retraining programs did not have a positive impact on the earnings of trainees, at least in the first three years after the initial claim for unemployment compensation (Decker and Corson, 1995).

Thus, the results of retraining programs appear to be mixed. When retraining is required, as in the U.S., it may be ineffective. More generally, the effectiveness of retraining programs tends to increase if they are demand driven, so, for example, subsidized apprenticeships in the private sector may work better than government provided training programs.[36] An alternate approach to requiring retraining is to require the participation in a job search program. This appears to increase the likelihood of employment and reduce unemployment benefits among recipients (Johnson and Klepinger, 1991; Decker and Corson, 1995).

F. Impact on Poverty

What is the impact of trade liberalization on poverty? First, experience suggests that rapid economic growth translates into sustainable reductions in poverty. Evidence also shows a significant association between trade liberalization and long-run improvements in economic growth. Thus, there is likely to be a positive link between liberalization and eradication of

poverty in the long run. Second, since trade reform reduces the anti-export bias and to the extent that exports are intensive in the use of unskilled or rural labor (which may be expected but not guaranteed in developing countries), trade reform is expected to increase the real wage and reduce both poverty and inequality.

Third, the circumstances and causes of poverty vary greatly. The major resource of the poor is their own labor. Trade liberalization affects a poor family in two ways. First, it affects the wages they earn and (if there are labor-market imperfections) whether they remain employed. If they are farmers, it affects the income they earn from the sales of products. Second, it affects the prices of the goods and services they consume. If trade liberalization raises staple food prices, producers, (often poor farmers) will gain, while subsistence farmers will be unaffected and consumers (often the urban poor) will suffer. For example, in Peru, poor farmers produce little sorghum but much coffee. As a first pass, then, the liberalization of coffee trade will raise coffee prices (and relieve poverty) while action on sorghum prices will not. A converse case is maize farmers in Mexico, who will probably be harmed as NAFTA drives down prices. (See Levy and Wijnbergen, 1992.)

Unfortunately there are very few empirical studies of the impact of trade liberalization on the poor. One study of Mauritius, however, found evidence of such a trend. Trade and macro stabilization reforms during 1980s led to increased income and a sharp reduction of unemployment, poverty and inequality. (See English, 1997).[37]

One excellent and instructive study was based on a nationally representative Living Standards Measurement Survey (LSMS) of Panama (World Bank, forthcoming). Panama has a distribution of income that is among the most unequal in the world: it has a Gini consumption (income) coefficient of 49 (60); 37% of the population lives in poverty and 19% live in extreme

poverty. Wage income represents 77% of the income of the poor, but unemployment (20% in 1989) and underemployment were very high. Moreover, close to three-fourths of the poor work in the informal sector, where workers earn 60% and 43% of what workers in the private and public formal sectors earn.

Prior to the 1990s, Panama was one of the most protected economies in Latin America. Combined with price controls and rigid labor market rules (that prevented termination and imposed minimum wages), this resulted in a highly inefficient manufacturing and agricultural sector that stifled growth and generated rents for certain groups (including workers who obtained jobs in the formal sector). But the protection raised prices of the basic consumption basket and depressed wages of workers in the informal sector where three-quarters of the poor work, i.e., it was highly regressive, implicitly taxing the poor and increasing poverty. In late 1996 and 1997 the government introduced widespread trade reform to accompany previously implemented labor market reform, competition law reform and privatization that had begun in 1994. Growth jumped in 1997 and, crucially for the poor, unemployment fell to 13.2% from 16.2% in 1994.

Since agriculture represents 59% of the consumption expenditures and 41% of the income source of poor Panamanians, the study also went beyond an assessment of the empirical data and employed a model to simulate the complete elimination of agricultural protection. The authors estimate that this further trade liberalization would reduce the Gini coefficient by 0.6 percentage points, the poverty rate would fall by 1.7 percentage points, and extreme poverty would fall by 1.1 percentage points. Despite the reduction in the cost of the consumption basket for the average poor person, some farmers would lose. Net losers would represent only two percent of the population, of whom one third are poor. They suggest programs for targeting the minority of poor farmers who would be adversely impacted.

Trade liberalization is likely to be associated with reduced poverty in the long run. For the short to medium run, trade liberalization will reduce the cost of the consumption basket of the poor which, by itself will have an impact on the reduction of poverty. The two studies cited also found a positive impact of trade liberalization on wages or employment of the poor since the poor tended to be located in unprotected sectors. But even when there is a general reduction in poverty, we must recognize that some of the poor may be made worse off. Some poor farmers, for example, may be made worse off by agriculture reform, especially in the short to medium run when adjustment costs remain.

IV. Trade Reform and Macroeconomic Stability

A broad definition of adjustment costs would include the possible short-term loss of government revenue, balance of payments difficulties, and macroeconomic instability resulting from reform. These are particularly important concerns for developing countries since many tend to rely heavily on trade taxes as a source of government revenue. Data from the 1988 *World Development Report* reveal that in 1985 explicit trade taxes accounted for 38 percent of total tax revenues in low-income developing countries and 19 percent of total tax revenues in middle-income developing countries. In 1990, collected trade taxes as a percent of GDP averaged 0.6 percent among OECD countries and 4.4 percent among non-OECD countries.[38] Policy makers in low-income countries are concerned that one of the costs of trade reform might be a substantial decline in government revenue, yielding larger fiscal deficits and inducing inflation.

While these concerns have some merit, trade reform need not entail diminished revenues. A number of countries have implemented successful trade reform programs without significant loss of revenue. For example, in the 1990s, Ghana, Kenya, Senegal and Malawi have implemented trade reforms without a significant loss in revenue as a percent of GDP (Ebrill *et al.*, forthcoming).

Perhaps the foremost reason why trade reform need not lead to a loss of revenue is that developing countries have traditionally relied heavily on quantitative restrictions of imports. Government revenue actually increases when quantitative restrictions are converted into their tariff equivalents. If tariff rates are very high initially, they will generate little or no revenue; reductions of the tariffs to more moderate levels will increase the quantity of imports, and the increased quantity effect will increase revenues. One way this will occur is that by reducing

extremely high tariff rates, the incentive to smuggle is reduced, thus increasing the share of official transactions in imports. Low tariffs may be placed on previously exempted goods, thereby increasing revenue. Finally, an exchange rate depreciation, which should accompany tariff reduction, will also provide additional tariff revenue to partially offset reduced tariff rates. When tariffs rates are already uniform and in the moderate to low range, then further tariff reduction is much more likely to result in revenue loss.[39]

One World Bank study of 9 countries that undertook 35 trade-oriented adjustment programs during the 1980's examined the impact of adjustment on tariff revenues. Of these nine countries, Cote d'Ivoire, Ghana, Jamaica, Pakistan, and Turkey actually increased their ratio of trade taxes relative to GDP while Indonesia, Mexico, and Morocco experienced a decline in this measure.[40] Columbia's foreign trade taxes were 2.3 percent of GDP both before and after implementation of reforms. As a group, trade taxes as a percent of GDP increased from 3.6 percent prior to reform to 4.5 percent subsequent to reform.

In a separate study, Thomas and Nash (1991) examined import tax revenues for 15 countries that underwent moderate to substantial trade reforms during the period 1980-87. For Bangladesh, Colombia, Ghana, Jamaica, Madagascar, Mauritius, and Pakistan, trade reform consisted primarily of a switch from quantitative restrictions to tariff restrictions along with reductions in the number of duty exemptions. These countries were labeled *quota reformers*. The remaining eight countries pursued reductions in tariff rates more aggressively and were therefore called *tariff reformers*. Tariff reformers included Chile, Korea, Mexico, Morocco, Panama, the Philippines, Thailand, and Turkey. Figure 4 illustrates that import tax revenues measured as a percentage of GDP declined for tariff reformers but increased for quota reformers.

Evidence of the effects of reform on inflation, the fiscal balance, and trade balance is quite encouraging. Thomas and Nash (1991) classified a group of 24 reforming countries according to whether the implemented reforms were substantial, moderate, or mild.[41] The substantial reformers included Chile, Colombia, Ghana, Jamaica, Korea, Mauritius, Mexico, and Turkey. The moderate reformers were Bangladesh, Madagascar, Morocco, Pakistan, Panama, the Philippines, and Thailand. The mild reformers included Cote d'Ivoire, Guyana, Kenya, Malawi, Senegal, Togo, Yugoslavia, Zambia, and Zimbabwe. Table 7 shows that the substantial and moderate reformers were generally able to reduce inflation, fiscal deficits, and trade deficits.[42] By contrast, the mild reformers had somewhat larger fiscal deficits and somewhat higher inflation after reforms were implemented. However, the trade deficits for this group did shrink after reform.

In general the data support the theory that removal of quantitative restraints typically leads to an increase in revenue and that trade reform does not typically lead to macroeconomic instability. In economies where protection is already low, further tariff reform can be expected to lower government revenue. In these cases, it is important to develop taxes that do not discriminate against imports in order to reap the benefits of trade liberalization.

V. Directions for Future Research

Existing research gives us reason to be cautiously optimistic that a wide range of economies are quite resilient and can adjust to trade liberalization swiftly and at minimal cost. However, although there have been many studies of the impact of trade liberalization on manufacturing employment in both developing and developed countries, attempts to quantify adjustment costs have been confined, for the most part, to industrial economies in general, and

the United States in particular. On the one hand, formal labor markets in developing countries may be less flexible than in industrial countries, suggesting adjustment costs would be higher. On the other hand, a higher percentage of employment in developing countries is in agriculture and in informal labor markets which are very flexible—implying lower adjustment costs. Although data limitations may make the task difficult, it would be extremely useful to try to rigorously measure adjustment costs for a range of developing countries. As we elaborate below, however, there are households living at the subsistence level in some developing countries who can ill afford an extended period of unemployment. Knowledge of the impacts on these households could allow for appropriate provisions for them during adjustment. Such research should be careful to model, both theoretically and empirically, the relationship between transition rates between states (as illustrated by the flows in Figure 3) and the institutional features, such as a large number of state-owned enterprises, that are prominent in many developing countries.

Additional research should focus on identifying barriers that slow down resource reallocation, thus creating excessive adjustment costs. For example, it is typically argued that legal restrictions that limit the ability of firms to layoff employees can result in generally inflexible labor markets. Similarly, overly generous unemployment benefits may reduce the incentives for newly laid-off workers to search for employment and therefore extend the time required for adjustment. Such policies may have beneficial aspects (for example, in providing a social safety net) but may in fact be welfare reducing when their effects on adjustment are considered. Both theoretical and empirical work could shed light on the proper balance between policies designed to be a social safety net and those designed to speed adjustment. (See the paper by Schultz in this volume.)

The research to date on adjustment costs has, for the most part, not incorporated the heterogeneity of labor and households. It would be very useful to have studies of the impact of trade liberalization on the poorest households and on workers of different skill levels or incomes. The evidence indicates that economic growth reduces poverty and that trade liberalization increases economic growth, so that trade liberalization should reduce poverty in the long run. But given our earlier discussion about the diversity nature of the poor, an adjustment process could conceivably adversely impact some of their poorest households. It would appear necessary to provision for the neediest in these situations, and further research could improve identification. In addition, both economic theory and the evidence cited above from the studies by Jacobsen and his co-authors suggest that earnings losses of workers depend on their characteristics such as specific human capital and wage premia due to union power or efficiency wages. It would be useful, however, to pre-select the sample of workers by their characteristics to determine more clearly the impact of these phenomena on the social and private costs of adjustment.

Additional research should be undertaken to examine the most effective means of distributing the burden of adjustment more evenly across society and for reducing the costs of adjustment where they appear to be excessive. For example, providing unemployment compensation or other adjustment assistance to those who become unemployed due to trade reforms reduces the private costs borne by those individuals. But this is unlikely to be an optimally designed compensation scheme for a variety of reasons. First, workers are displaced for a variety of reasons in a market economy, and it is difficult to rationalize adjustment assistance for trade displaced workers and not for other reasons, for example, for technology displaced workers. Moreover, it is difficult to distinguish workers who are displaced due to trade liberalization from those who are displaced for other reasons. If programs are available only for

trade displaced workers, displaced workers will claim they were displaced for trade related reasons. Second, generally the workers who suffer the largest adjustment costs are the ones who were earning substantial rents in their original job due to protection. In effect, they had received indirect transfers from workers in unprotected industries. Thus, it is difficult to rationalize transfers that would compensate for all earnings losses since this implies continuing transfers from workers in unprotected industries, workers who in some cases may be less wealthy. Third, the incentive effects of compensation schemes on extending the duration of unemployment must be taken into account.[43]

Finally, additional research that would allow us to better identify the types of retraining programs that are most cost-effective in reducing adjustment costs would be also useful.

VI. Summary and Conclusion

In this paper we have summarized the empirical research on the adjustment costs of trade liberalization. We began with three studies that empirically examined employment effects from thirty separate economy-wide episodes of trade liberalization in developing countries. In these studies it is difficult to disentangle the effects of trade liberalization from other events occurring simultaneously, but generally, manufacturing employment increased subsequent to the trade liberalization. Transition economies are a special case where manufacturing employment declined after liberalization, but employment decline was faster in transition economies that did not liberalize. We next surveyed studies that quantify the costs of adjustment from trade liberalization. These include economy-wide studies of Australia and Uruguay and two of the U.S., as well as studies by several authors of trade liberalization in 22 industries in the U.S. and the U.K. In general, these studies find that the benefits of trade liberalization are vastly greater than the costs--typically for each dollar of adjustment costs there are typically more than 20 dollars of benefits from trade liberalization.

We next report on two studies of small and medium size enterprises in eight African economies. It is found that small and medium size enterprises in these countries are highly dynamic (even when compared to industrialized countries), making speedy adjustment to trade reform more likely. Then we next examine studies of the private costs of adjustment in eight countries. These costs can be quite substantial in cases where the workers were earning substantial rents in their original job, but tend to be small otherwise.

In the last empirical section, we discuss the impact of trade reform on macro-economic stability drawing on two studies that examined the impact on the fiscal deficit in 15 and 9 countries, respectively. These studies conclude that countries that were eliminating quotas

typically reduced their fiscal deficits and inflation, while those reducing tariffs had slightly larger fiscal deficits and inflation initially, that eventually shrank.

We find that it is necessary to apply caveats to most of the studies we survey regarding conclusions with respect to adjustment costs; thus, it is necessary to be cautious regarding conclusions based on any few of them. Most notably, while there are numerous studies on the effects of trade liberalization on aggregate employment in developing countries, virtually all studies that quantified adjustment costs have been done in industrialized countries. Collectively, however, the weight of so many studies of various types, all pointing in more or less the same direction, makes it difficult to avoid the conclusion that adjustment costs are very small in relation to the benefits of trade liberalization.

Why then do these studies find that adjustment costs are so small and that there is little decline (usually an increase) in manufacturing employment in developing countries one year after trade liberalization? Regarding manufacturing employment, these results are explained by a number of considerations: (1) developing countries would be expected to have comparative advantage in labor intensive industries, so trade liberalization should favor labor; (2) it has been observed that a great deal of inter-industry shifts occurred after trade liberalization, which minimized the dislocation of factors of production; and (3) in many industries normal labor turnover exceeds dislocation from trade liberalization, so that downsizing where necessary could be accomplished without much forced unemployment.

The explanation for the low adjustment costs in relation to the benefits is as follows: (1) most importantly, adjustment costs are typically short term and terminate when workers find a job, while the benefits of trade reform can be expected to grow with the economy; (2) estimates of the duration of unemployment for most industries are not high, especially where workers were

not earning substantial rents in the original job; and (3) as noted above, normal labor turnover often exceeds job displacement from trade liberalization.

Given these results we devote some attention in this paper to an assessment of the private costs of trade liberalization. Knowledge of the distribution of the private costs and benefits associated with trade reform is useful because of concerns for an equitable distribution of income, and because such knowledge might guide the implementation of contemporaneous policies that might diffuse some of the political opposition that may arise.

One policy we recommended is a uniform tariff; a uniform tariff will minimize lobbying by special interests for protection because it diffuses the benefits of protection. If the only way protection can be increased is by increasing protection for all industries, lobbying for protection then yields only dispersed benefits as well as costs to the lobbyists.

Finally we briefly discuss policies to minimize adjustment costs where it appears that adjustment costs might be excessive, and suggest areas where additional research in this area would be useful. We note that zero adjustment costs are socially suboptimal in a dynamic economy, since it would imply insufficient search time by temporarily unemployed workers. Moreover, given sound complementary policies, adjustment costs associated with trade liberalization are unlikely to provide an adequate reason for delays in opening up to the outside world. Nonetheless, it is likely that policymakers can reduce such costs. Perhaps the most important complementary policies are ensuring macroeconomic stability and the credibility of policies so as to foster a quick, sustained private investment response in newly competitive sectors of the economy. Structural policy reforms to improve labor market flexibility and reform of the state enterprise sector may provide important complementary support. Of course, each of these policies is likely to be of great economic value on its own. The mutually supportive

relations between trade, macroeconomic, labor market and other policies may then serve to increase the credibility and payoffs to each.

---

1. Thomas and Nash (1991) summarize a number of studies that indicate the direct (efficiency) gains from trade reform range from 1 or 2 percent of GDP per year up to as much as 10 percent of GDP per year if production is characterized by increasing returns to scale. By eliminating incentives to smuggle, lobby, evading tariffs and so on, trade reform can generate an additional (indirect) benefit. Thomas and Nash (1991) cite evidence that this indirect benefit may be larger than 6 percent of GDP in countries such as India and Turkey. In addition, there is some evidence that trade liberalization may improve long-run growth rates by improving incentives to invest and save and by exposing the economy to more advanced technologies. See Thomas and Nash (1991) for a brief survey of empirical evidence linking trade reforms to growth.
2. We describe private adjustment costs more fully in section 3.D of this paper where we show that such costs can be quite large. We also explain in that section that private costs, even in the aggregate, need not coincide with the social costs identified in this paper.
3. See Morgan and Manning (1985).
4. The diagrammatic treatment in this section is based on Neary (1982).
5. There will still be some hiring due to the fact that there exists natural attrition (retirements, workers voluntarily quitting to relocate geographically or to take a better job).
6. Surprisingly, there is little agreement among economists regarding the determinants of the steady-state level of unemployment. Most models of international trade assume no unemployment in the steady state. Theoretical studies that explicitly allow for the existence of long-run unemployment have concluded that trade liberalization can either reduce (Matusz 1996) or increase (Matusz 1994) the steady-state level of unemployment. In any event, it is not the mere existence of unemployment that poses the adjustment cost; rather it is the change in unemployment that matters.
7. Factor market distortions could conceivably invalidate the predictions of the Heckscher-Ohlin model of trade. For example, government subsidies to capital combined with legislation that artificially inflates the cost of hiring workers could reduce relative production costs for capital-intensive industries compared with labor-intensive industries. In turn, this shift in relative production costs could reverse the pattern of trade predicated on the basis of factor endowments and an expansion of the export sector could actually reduce employment. This possibility was recognized in Krueger (1983). However, her review of ten case studies (covering Argentina, Brazil, Chile, Indonesia, Ivory Coast, Pakistan, South Korea, Thailand, Tunisia, and Uruguay) indicates substantial scope for employment growth resulting from a switch toward export-oriented policies even when factor markets are characterized by substantial distortions.
8. The empirical relevance of the Heckscher-Ohlin model of trade has been questioned for more than 40 years, ever since Leontief's celebrated finding that U.S. exports were labor-intensive relative to its imports. Recent research has shown, see, for example, Trefler (1995), that a narrowly defined version of the model is a poor reflection of reality. On the other hand, when the assumption of identical technologies across countries is dropped and a home bias in consumption is allowed, the model does remarkably well in predicting things such as relative wages and the allocation of resources across sectors. It is these latter more resilient implications that we focus on in this paper.
9. On the other hand, policy makers are often concerned about the possibility that liberalization may lead to "deindustrialization." The employment trends reported in Table 1 do not lend support to this hypothesis. Moreover, we note that in the case of Chile, which is the one reported case where manufacturing employment fell, employment in agriculture increased.
10. The authors of this study define micro enterprises as those comprised of 5 or fewer workers, whereas small scale enterprises consist of 6 to 49 workers.
11. The reforms undertaken by these countries went beyond trade liberalization to include regulatory and financial reforms, as well as reforms in public enterprises and the tax structure. According to Parker, et al., the reforms were the most extensive and thorough in Ghana, followed closely by Mali. They ranked Malawi third in terms of the extensiveness of reforms, with Tanzania and Senegal having the least extensive reforms.

12. While Magee used an average wage rate for all workers, Baldwin et al. assumed that the wage rate of a dislocated worker in a given industry was related to the demographic characteristics of the average worker in that industry. For example, if workers in one industry have more education on average than workers in another, then it would be logical to assume that the wage paid to the average worker in the former is higher than that in the latter.
13. To date, no other studies have attempted to quantify the costs of capital idled by trade reform.
14. Since Baldwin et. al. were concerned with evaluating the impact of the Tokyo Round, they assume a multilateral tariff reduction. This poses some difficulties, however, in applying their results to the effects of a unilateral tariff reduction, which is the more common question of interest to many policy makers. Another problem is that they assume that expansion of the export sectors leads to a reduction in the duration of unemployment. While this may be true, it is also possible that such an assumption understates the true adjustment costs since export sectors may not expand as fast as import sectors contract.
15. These are generally very labor intensive industries where comparative advantage would presumably lie with the developing countries. Presumably, liberalization in labor abundant countries could lead to concentrated employment reductions in relatively capital intensive industries.
16. More recently, Cooper (1994) observes that U.S. employment in the textile, apparel, and leather sectors declined by approximately 20 percent between 1980 and 1990. Similar declines occurred in France, Germany, Italy, the Netherlands, Spain, and the United Kingdom. Cooper conjectures that these shifts were due to increased competition from developing countries. Even if true, this decline in employment amounts to roughly two percent per year in these industries, a magnitude that is dwarfed by annual turnover due to retirements and other voluntary quits.
17. Their four scenarios are a 25 percent across the board cut in protection; a reduction in the highest tariff rates to 31.17 percent; exempting textiles, footwear, and motor vehicles while cutting all other rates of protection by 75.85 percent; and exempting these sectors while cutting the remaining highest tariffs to 3.17 percent.
18. For the situation of complete trade reform, including elimination of rent-seeking activities, the authors estimate that the welfare gain for Uruguay would be equivalent to more than eight percent of GDP.
19. While the focus of this study is on the removal of trade barriers in these three industries, the authors do account for the complex linkages of these industries with the rest of the economy. For example, they allow for the fact that automobile production uses steel as an input and they allow for the fact that other sectors of the economy (such as agriculture, other manufacturing, and services) compete for labor with the industries under study.
20. It should be noted that the benefits are true social benefits resulting from efficiency gains and quota rent capture by the U.S. economy, whereas the costs as measured by de Melo and Tarr may be private, but not social costs. For example, a worker who experiences a reduction in his wage because his skills are no longer in demand bears a private cost. However, this is not a social loss if his wage is a true reflection of how society values his skills. Therefore, the ratio of seventeen to one may be an understatement of the ratio of social benefits to social costs. An additional reason for believing this figure to be understated stems from the fact that the authors did not account for the growth of the benefits of liberalization over time, nor did they account for the fact that the benefits persist indefinitely.
21. This figure contrasts with the work of Bale (1976), who interviewed American workers who were displaced by trade liberalization between 1969 and 1970. Based on his interviews, Bale calculated the average duration of unemployment of 31 weeks for this group of trade-impacted workers.
22. As the Takacs and Winters suggest, this wage may overstate or understate the true social cost of unemployment. For example, the true value of a worker's skills should be measured by the wage that he could earn in his next best alternative employment. The social cost of unemployment is then overestimated to the extent that this next best alternative is lower than his wage prior to becoming unemployed. On the other hand, their measure may understate the social cost of unemployment since aggregate turnover rates may mask important differences among groups of workers. For example, men tend to perform very specific tasks in the shoe industry, while women tend to perform others. Suppose that the turnover rate for women is much higher than for men. In reality, any men displaced due to liberalization could be expected to be unemployed for a much longer duration than women.
23. Once again the authors remind us that the benefits of liberalization persist indefinitely, while the adjustment costs terminate once all adjustments have been made. Assuming a discount rate of 7% for consistency with Magee (1972) and de Melo and Tarr (1990), the benefit-cost ratio would rise to 2,193!

24. One weakness of this study is that it ignores new entrants into the labor market. That is, in a steady state, new entrants replace the workers exiting the industry. These new entrants must then have longer spells of unemployment if trade-displaced workers now replace the exiting workers.
25. The numbers reported here compare the standard efficiency gains with the direct costs of labor adjustment. That is, they ignore the possibility that a decline in the motor vehicle sector might initiate a further decline in the iron and steel sector.
26. Of those finding employment, 20 percent obtained jobs in the formal sector, with the remainder becoming self-employed or taking jobs in the informal sector.
27. This figure, measured as of November 1992, was derived by extrapolating from the rate at which unemployed workers were finding jobs. The projected duration of unemployment was only 7 months when measured in February 1991.
28. Liedholm and Meade suggest that the typical start-up rate for MSEs in industrialized countries is approximately ten percent. They also report that the failure rate for MSEs is also very high. In particular, the rate of closures in the Dominican Republic (the only country for which accurate data exists) was in excess of twenty percent during the early 1990s.
29. They define a displaced worker as one "whose job loss results from the plant closings and mass layoffs associated with economic restructuring" (Jacobson, et al. 1993b).
30. These wage differences refer to the actual wage at a point in time compared with the wage the worker would have been expected to have earned had he or she not been displaced.
31. Only one third of displaced workers found re-employment during the period.
32. The average duration of unemployment can be calculated from the data that Mills and Sahn (1995) present in their Table 9.
33. For example, during macroeconomic crises, real wages in Argentina, Bolivia, Chile, and Mexico fell by 33 percent or more before recovering (World Development Report, 1995). It is unclear how much if any of these wage reductions were due to trade reform.
34. See O'Leary (1997).
35. See World Development Report (1995), Box 17.1.
36. O'Leary (1995) discusses the measurement of the effectiveness of labor market programs in Hungary and Poland.
37. The macro-reforms reduced inflation and resulted in a real exchange rate that was not overvalued, which helped to encourage foreign direct investment. These factors combined with encouragement of export processing zones resulted in an increase of the number of firms in these zones from 115 in 1982 to 591 in 1988. Although comprehensive trade reform was not implemented in the 1980s in Mauritius, value added and employment in the export processing zones dramatically expanded following the reforms. Unemployment, which had been about 15 percent in the early 1980s disappeared and investors began worrying about a labor shortage in the early 1990s. The percentage of households below the poverty line fell from 40 percent in 1975 to 11 percent in 1992 and the Gini coefficient fell from 42 to 35 in the same period (World Bank, 1995a, 70-71). This was primarily due to a reduction in unemployment, but partly due to an increase in real wages.
38. See Ebrill et al. (forthcoming). Trade taxes as a percent of GDP were: 5.3 percent in Africa, 4.4 percent in Asia, and 3.5 percent in the Middle East.
39. See Tanzi (1988) for further elaboration. The experience of Latin America after 1985 indicates that trade reform can be expected to lead to revenue loss (unless compensated by geographically neutral taxes) when trade reform starts from a position of already low tariffs (International Monetary Fund, 1998)..
40. The comparison is between the average annual value of foreign trade taxes as a percent of GDP during the years 1986-89 with the same measure for the years 1978-82. See Table 3.6 of World Bank (1992)
41. A country was considered to have implemented substantial reform if there was any real depreciation of the exchange rate combined with a substantial reduction in the antiexport bias of commercial policy or a minimum 20 percent real depreciation of the exchange rate accompanied by a moderate reduction in the antiexport bias of commercial policy. Moderate reformers had real exchange rate depreciation less than 20 percent and moderate reductions in the antiexport bias of commercial policies, or mild reductions in the antiexport bias of commercial policy combined with depreciation of at least 20 percent, or real exchange rate depreciation of less than 20 percent combined with substantial reductions in the antiexport bias of commercial policies. All other combinations of changes in commercial policy and the exchange rate

(including cases of policy reversal) were considered to be cases of mild reform. It should be recognized that there is a certain degree of subjectivity in this classification system.

42. The term "resource balance" is defined as the net exports of goods and non-factor services.

43. A program of very generous unemployment benefits could reduce the incentives for unemployed workers to search for new jobs, thereby extending the period of unemployment and increasing the social costs of adjustment.

References

Assaad, Ragui (1996), "An Analysis of Compensation Programs for Redundant Workers in Egyptian Public Enterprise," manuscript prepared for World Bank conference on Public Sector Retrenchment and Efficient Compensation Schemes.

Baldwin, Robert E., John H. Mutti, and J. David Richardson (1980), "Welfare Effects on the United States of a Significant Multilateral Tariff Reduction," *Journal of International Economics*, 10: 405-423.

Bale, Malcom D. (1976), "Estimates of Trade Displacement Costs for U.S. Workers," *Journal of International Economics*, 6: 245-250.

Basu, Kaushik, Gary Fields, and Shub Debgupta (1996), "Retrenchment, Labor Laws and Government Policy: An Analysis with Special Reference to India," manuscript prepared for World Bank conference on Public Sector Retrenchment and Efficient Compensation Schemes.

Blanchflower, David and Andrew Oswald (1995), *The Wage Curve*, Cambridge: MIT Press.

Cooper, Richard N. (1994), "Foreign Trade, Wages, and Unemployment," Discussion Paper No. 1701, Harvard Institute of Economic Research, Harvard University.

Corson, Walter and Walter Nicholson (1981), "Trade Adjustment Assistance for Workers: Results of a Survey of Recipients under the Trade Adjustment Assistance Act of 1974," *Research in Labor Economics*, 4, 417-469.

Decker, Paul and Walter Corson (1995), International Trade and Worker Displacement: Evaluation of the Trade Adjustment Assistance Program," *Industrial and Labor Relations Review*, 48 (4), 758-774.

de Melo, Jaime and David Roland-Holst (1994), "Economywide Costs of Protection and Labor Market Rigidities," in *The Effects of Protectionism on a Small Country: The Case of Uruguay*, Michael Connolly and Jaime de Melo, eds., the World Bank.

de Melo, Jaime and David Tarr (1990), "Welfare Costs of U.S. Quotas in Textiles, Steel and Autos," *Review of Economics and Statistics*, 72: 489-497.

Dixon, Peter B., B. R. Parmenter and Alan A. Powell (1984), "Trade Liberalization and Labor Market Disruption," *Journal of Policy Modeling*, 6: 431-454.

Ebrill, Liam, Janet Strotsky and Reint Gropp (forthcoming), "Revenue Implications of Trade Liberalization," International Monetary Fund Occasional Paper Number 180.

English, Phillip (1997) *Mauritius: Re-igniting the Engines of Growth*, Economic Development Institute, World Bank, Washington DC.

Fallon, Peter R. and Robert E. B. Lucas (1993), "Job Security Regulations and the Dynamic Demand for Industrial Labor in India and Zimbabwe," *Journal of Development Economics*, 40: 241-275.

Fernandez, Raquel and Dani Rodrik (1991), "Resistance to Reform: Status Quo Bias in the Presence of Individual-Specific Uncertainty," *American Economic Review*, 81: 1146-1155.

Haltiwanger, John and Manisha Singh (1996), "Cross-Country Evidence on Public Sector Retrenchment," manuscript prepared for World Bank conference on Public Sector Retrenchment and Efficient Compensation Schemes.

Harrison, Ann and Ana Revenga (1995), "Factor Markets and Trade Policy Reform," World Bank manuscript.

Hoddinott, John (1996), "Wages and Unemployment in an Urban African Labour Market," *Economic Journal*, 106: 1610-1626.

Jacobsen, Louis S. (1978), "Earnings Losses of Workers from Manufacturing Industries," in Willian DeWald et al. (eds.), *The Impact of International Trade on Investment and Employment*, Washington, D.C.: U.S. Government Printing Office.

Jacobson, Louis S., Robert J. LaLonde, and Daniel G. Sullivan (1993a), "Earnings Losses of Displaced Workers," *American Economic Review*, 83: 685-709.

_____ (1993b), "Long-term Earnings Losses of High-seniority Displaced Workers," *Economic Perspectives*, 17: 2-20.

Johnson, Terry and Daniel Klepinger (1991), "Evaluation of the Impacts of the Washington Alternative Work Search Experiment," Unemployment Insurance Occasional Paper 91-4, Washington D.C.: U.S. Department of Labor, Employment and Training Administration.

Krueger, Anne (1983), *Trade and Employment in Developing Countries: Synthesis and Conclusions*, Chicago: National Bureau of Economic Research and The University of Chicago Press.

Levy, Anat and Richard McLean (1996), "Optimal and Sub-Optimal Retrenchment Schemes: An Analytical Framework," manuscript prepared for World Bank conference on Public Sector Retrenchment and Efficient Compensation Schemes.

Levy, Santiago and Sweder van Wijnbergen (1992), "Mexican Agriculture in the Free Trade Agreement: Transition Problems in Economic Reform," OECD Development Centre Technical Paper 63 1-92, Paris: OECD.

Liedholm, Carl and Donald C. Mead (1995), "The Dynamic Role of Micro and Small Enterprises in the Development Process," GEMINI Action Research Program I: Final Report.

Mills, Bradford F. and David E. Sahn (1995), "Reducing the Size of the Public Sector Workforce: Institutional Constraints and Human Consequences in Guinea," *Journal of Development Studies*, 31: 505-528.

Mussa, Michael (1982), "Government Policy and the Adjustment Process," in *Import Competition and Response*, University of Chicago Press, Jagdish N. Bhagwati, ed.

Magee, Stephen P. (1972), "The Welfare Effects of Restrictions on U.S. Trade," *Brookings Papers on Economic Activity*, *3*, pp 645-701.

Matusz, Steven J. (1994), "International Trade Policy in a Model of Unemployment and Wage Differentials," *Canadian Journal of Economics*, 27: 939-949.

Matusz, Steven J. (1996), "International Trade, the Division of Labor, and Unemployment," *International Economic Review*, 37: 71-84.

Michaely, Michael, Armeane Choksi, and Demetris Papageorgiou (1987), "The Design of Trade Liberalization," *Finance and Development*, 26 (March): 2-5.

Morgan, Peter and Richard Manning (1985), "Optimal Search," *Econometrica*, 53: 923-944.

Morkre, Morris and David Tarr (1980), *Effects of United States Restrictions on Imports: Five Case Studies and Theory*, Bureau of Economics Report to the Federal Trade Commission, Washington D.C.: U.S. Government Printing Office.

Mutti, John (1978), "Aspects of Unilateral Trade Policy and Factor Adjustment Costs," *Review of Economics and Statistics*, pp. 102-110.

Neary, J. Peter (1982), "Intersectoral Capital Mobility, Wage Stickiness, and the Case for Adjustment Assistance," in *Import Competition and Response*, University of Chicago Press, Jagdish N. Bhagwati, ed.

Nogues, Julio (1991), "Trade, Employment, and Growth in Peru Since WWII" *in Liberalizing Foreign Trade*, Demetris Papageorgiou, Michael Michaely, and Armeane Choski, eds., Basil Blackwell.

O'Leary, Christopher J. (1995), "Performance Indicators: A Management Tool for Active Labour Programmes in Hungary and Poland," *International Labour Review*, 134: 729-751.

_____ (1997), "A Net Impact Analysis of Active Labour Programmes in Hungary," *The Economics of Transition*, forthcoming.

Orazem, Peter, Milan Vodopivec, and Ruth Wu (1995), "Worker Displacement During the Transition: Experience from Slovenia," Policy Research Working Paper 1449, The World Bank Policy Research Department, Transition Economics Division.

Panagariya, Arvind and Dani Rodrik (1993), "Political Economy Arguments for a Uniform Tariff," *International Economic Review*, 34: 687-703.

Papageorgiou, Demetrios, Armeane M. Choksi, and Michael Michaely (1990), *Liberalizing Foreign Trade in Developing Countries: The Lessons of Experience*, The World Bank.

Parker, Ronald L., Randall Riopelle, and William F. Steel (1995), "Small Enterprises Adjusting to Liberalization in Five African Countries," *World Bank Discussion Papers*, no. 271.

Rama, Martin (1994), "Flexibility in Sri Lanka's Labor Market," Policy Research Working Paper 1262, The World Bank Policy Research Department, Trade Policy Division.

Rama, Martin and Donna Macisaac (1996), "Activity, Earnings and Welfare after Retrenchment: Central Bank Employees in Ecuador," manuscript prepared for World Bank conference on Public Sector Retrenchment and Efficient Compensation Schemes.

Robbins, Donald (1996), "Public Sector Retrenchment: A Case Study of Argentina," manuscript prepared for World Bank conference on Public Sector Retrenchment and Efficient Compensation Schemes.

Roberts, Mark and James Tybout (1997), "The Decision to Export in Colombia: An Empirical Model of Entry with Sunk Costs," *American Economic Review* 87: 545-563.

Saint-Paul, Gilles (1995), "The High Unemployment Trap," *Quarterly Journal of Economics*," 110: 527-550.

Schaffner, Julie Anderson (1993), "Rural Labor Legislation and Permanent Agricultural Employment in Northeastern Brazil," *World Development*, 21: 705-719.

Steel, William F. and Leila M. Webster (1992), "How Small Enterprises in Ghana Have Responded to Adjustment," *The World Bank Economic Review*, 6: 423-438.

Stigler, George (1971), "The Theory of Regulation," *Bell Journal of Economics.*

Tansel, Aysit (1996), "Workers Displaced Due to Privatization in Turkey: Before Versus After Displacement," manuscript prepared for World Bank conference on Public Sector Retrenchment and Efficient Compensation Schemes.

Tanzi, Vito (1988), "The Impact of Macroeconomic Policies on the Level of Taxation (and on the Fiscal Balance) in Developing Countries," International Monetary Fund Working paper (WP/88/95).

Tarr, David and Morris Morkre (1984), *Aggregate Costs to the United States of Tariffs and Quotas on Imports*, Bureau of Economics Report to the Federal Trade Commission, Washington, D.C.: U.S. Government Printing Office.

Trefler, Daniel (1995), "The Case of the Missing Trade and Other Mysteries," American Economic Review, 85: 1029-1064.

Thomas, Vinod and John Nash (1991), *Best Practices in Trade Policy Reform*, Oxford University Press, Oxford.

Winters, L. Alan and Wendy E. Takacs (1991), "Labour Adjustment Costs and British Footwear Protection," *Oxford Economic Papers*, 43: 479-501.

World Bank (1992), "Trade Policy Reforms Under Adjustment Programs," Operations Evaluation Department.

World Bank (1995), *World Development Report*, Oxford University Press, Oxford.

World Bank (1995a), *Mauritius—Country Economic Memorandum: Sharpening the Competitive Edge,* Washington D.C., April.

World Bank (1996), *World Development Report*, Oxford University Press, Oxford.

World Bank (forthcoming), *Panama Poverty Assessment: Priorities and Strategies for Poverty Reduction,* Human Development Department, Latin American and the Caribbean Region, The World Bank.

Figures and Tables

Figure 1: The Benefits of Reform

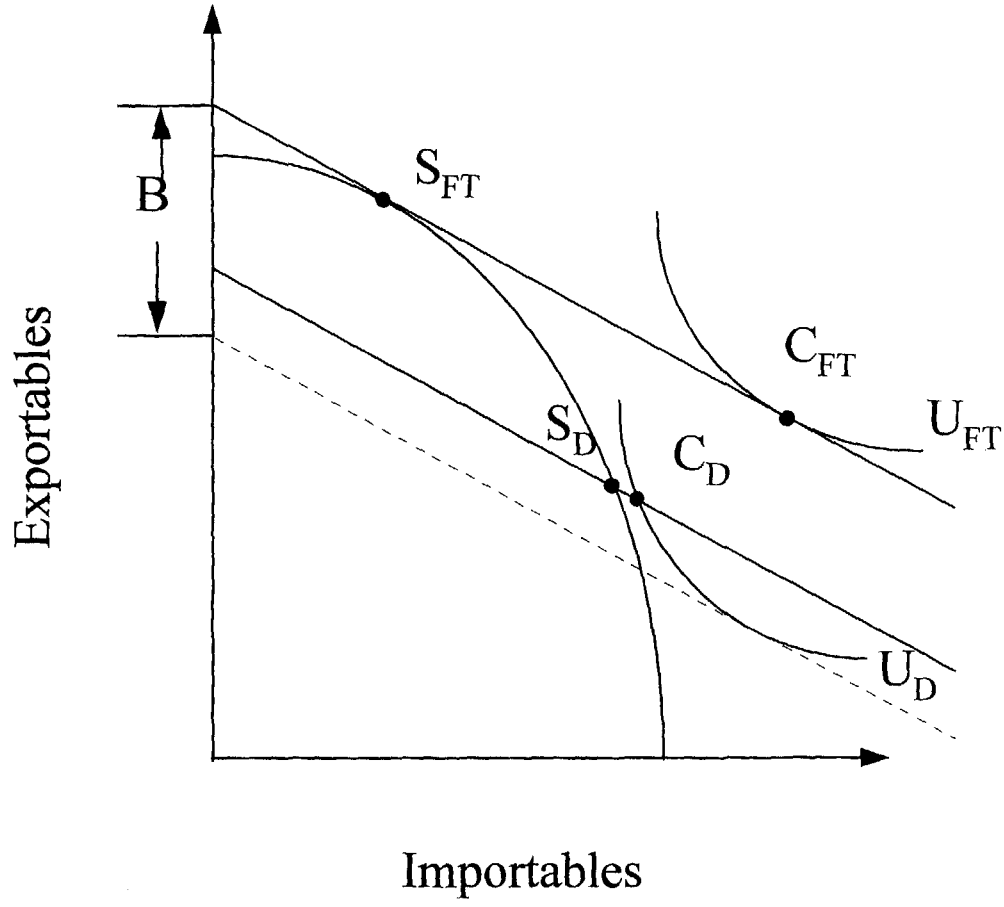


Figure 2: The Costs of Reform

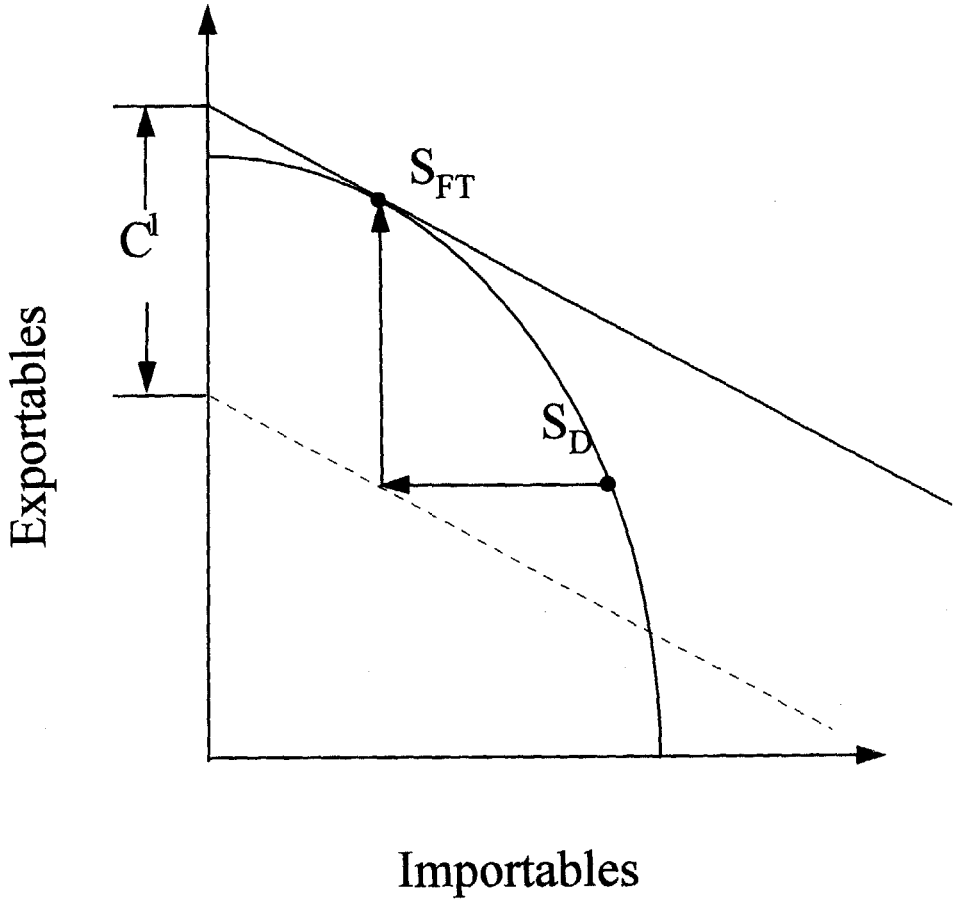


Figure 3: The Labor Market

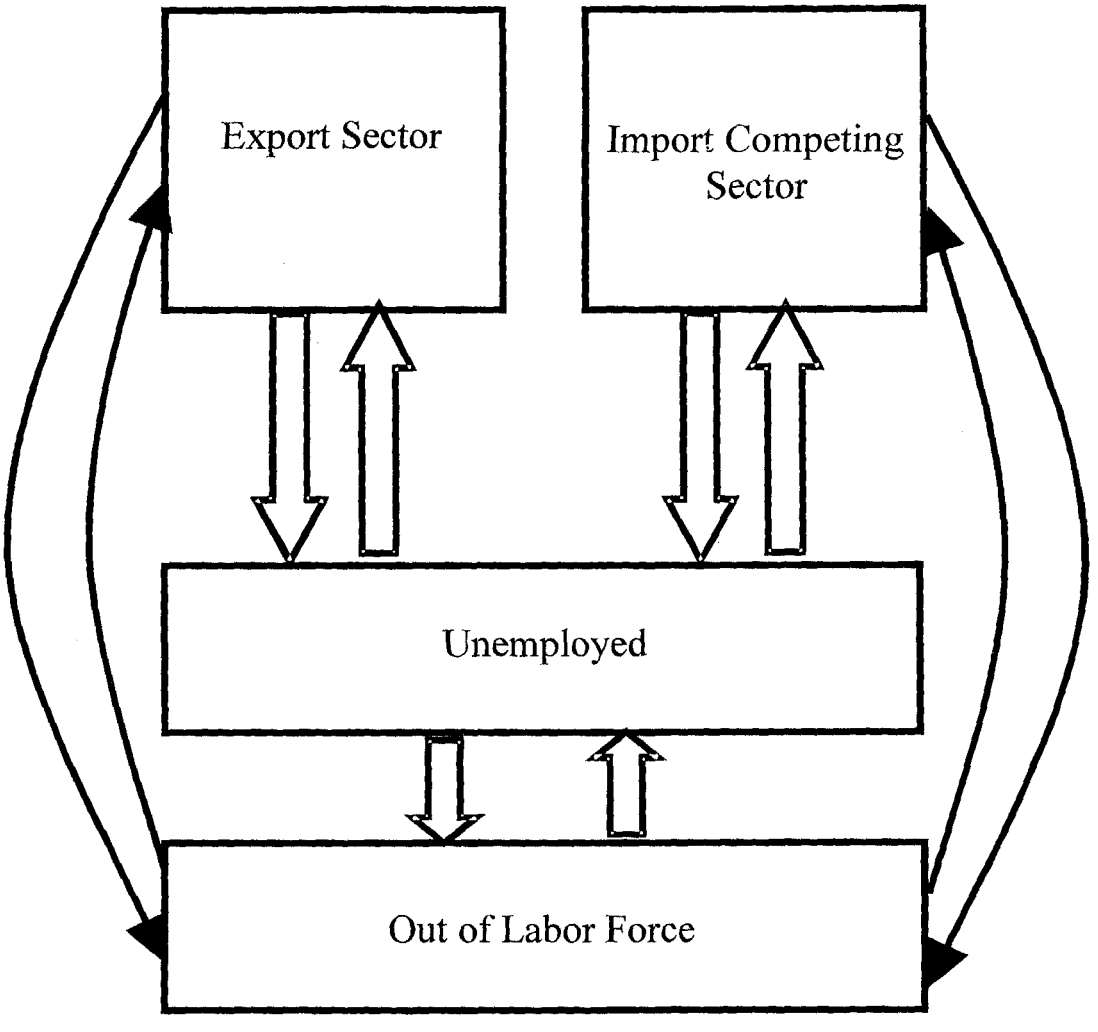
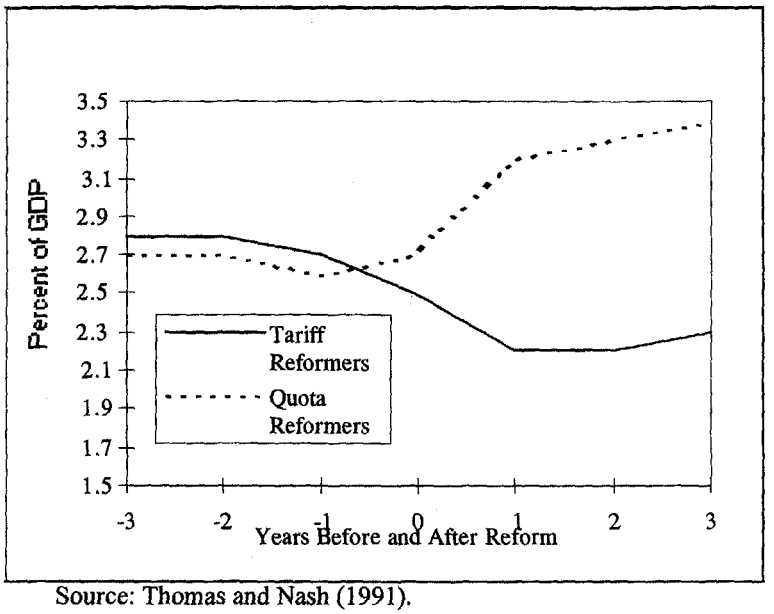


Figure 4: Import Taxes as Percent of GDP



Source: Thomas and Nash (1991).

Table 1: Employment in Manufacturing during Episodes of Liberalization

(Thousands of Persons)

Episode	Year Before Liberalization	Average for Liberalization period	Year After Liberalization
Argentina 1 (1967-70)	1,836	1,847	1,914
Argentina 2 (1976-80)	1,863	2,099	2,132
Brazil (1965-73)	1,780	2,182	3,397
Chile 2 (1974-81)	515	487	351
Korea 2 (1978-79)	2,000	2,196	2,099
Peru (1979-80)	675	717	736
Philippines 1 (1960-65)	1,456	1,647	1,825
Philippines 2 (1970-74)	2,056	2,313	2,596
Singapore (1968-73)	61	139	210
Sri Lanka 1 (1968-1970)	74	108	97
Sri Lanka 2 (1977-79)	112	134	155
Turkey 1 (1970-73)	485	551	651
Turkey 2 (1980-84)	799	829	not available

Note: Periods of liberalization are in parentheses.

Source: Table 10 in Papageorgiou, Choksi, Michaely (1990)

Table 2: Annual Labor Growth Among Existing Firms Under Liberalization
(percent per annum)

Number of Employees	All countries	Ghana	Malawi	Mali	Senegal	Tanzania
1-5	+18	+10	+19	+24	+7	+20
6-20	+11	+6	-3	+20	+12	+10
21-49	+3	+3	+2	+2	0	+3
50+	+1	-9	n.a.	+10	0	+17
All firms	+5	-1	+5	+13	+2	+9

Note: Size categories are based on total employment of the firm at the time of reforms.

Source: Table 6.2 in Parker, et al. (1995).

Table 3: Total Employment (Thousands)						
Year	Costa Rica	Czechoslo-vakia	Peru	Poland	Romania	Uruguay
1982	759.9	8184	n.a.	18208.5	10428.1	n.a.
1983	767.6	8200	n.a.	18374.7	10457.8	n.a.
1984	839.7	8251	n.a.	18383.5	10499.9	932.6
1985	826.7	8317	n.a.	18531.4	10586.1	n.a.
1986	854.2	8379	1988.3	18594.5	10669.5	1021.2
1987	923.3	8409	2061.1	18596.2	10718.6	1090.7
1988	951.2	8449	n.a.	18474.1	10805.4	1103.1
1989	986.8	8431	2169.5	18438.0	10945.7	1134.4
1990	1017.2	8249	n.a.	17552.1	10839.5	1136.2
1991	1006.6	7710	2337.0	n.a.	n.a.	n.a.

n.a. Not Available

Source: Harrison and Revenga (1995) data underlying their Figure 1.

Table 4: Estimated Benefit/Cost Ratios Associated with U.S. Import Liberalization			
	Discount Rate		
Number of Years After Liberalization	4%	7%	10%
1	5.7	5.7	5.7
2	6.3	6.3	6.3
3	7.0	7.0	7.0
4	7.7	7.6	7.6
5	8.3	8.2	8.2
15	25.0	21.8	19.5
Total	60.2	36.1	26.5

Source: Calculated from Magee (1972) Tables 7 and 8.

Table 5: Characteristics of Micro and Small Scale Enterprises							
	Botswana	Kenya	Lesotho	Malawi	Swaziland	Zimbabwe	Dominican Republic
MSE employment as percent of Pop. aged 15-64	17	18	17	23	26	27	19
Percent of MSEs that are one-person enterprises	65	47	79	61	69	69	22
Percent of all MSEs with 10-50 workers	3	2	1	1	2	2	18
Percent of hired workers* in MSE labor force	39	24	10	18	15	16	36

Source: Liedholm and Meade (1995), Table 2.1

* Percentage of hired workers refers to percentage of salaried, out of family workers.

Table 6: Annual MSE New Starts Rate*					
Country	Year	Enterprise Size (number of workers)			
		1	2-9	10+	Overall Average
Botswana	1991	32.9	11.5	4.2	25.2
Kenya	1992	33.7	10.3	1.6	21.2
Malawi	1991	26.9	14.1	13.1	21.7
Swaziland	1990	26.3	10.8	2.4	21.7
Zimbabwe	1990	22.8	10.6	18.7	19.3
Dominican Republic	1993	n.a.	n.a.	n.a.	20.6

Source: Liedholm and Meade (1995), Table 3.1.

* Numbers in the table reflect that percentage of all enterprises in that category that were created in the specified year.

Table 7: Macroeconomic Indicators Before and After Reform for 24 Countries

Indicator and Country Group	*3 years before reform*	*2 years before reform*	*1 years before reform*	*Year of Reform*	*1 year after reform*	*2 years after reform*	*3 years after reform*
Inflation Rate							
Substantial Reform	31.5	34.3	30.6	55.5	25.9	22.9	22.6
Excluding Mexico	30.6	33.0	26.6	48.9	20.3	17.4	17.0
Moderate Reform	12.4	11.8	12.3	9.3	8.9	8.1	7.6
Mild Reform	15.5	15.7	15.3	17.4	14.8	16.9	19.3
Fiscal Deficit/GDP							
Substantial Reform	-4.8	-6.4	-7.8	-7.2	-6.1	-4.4	-4.6
Excluding Mexico	-5.1	-6.4	-6.5	-7.1	-5.9	-3.6	-2.6
Moderate Reform	-7.2	-7.8	-6.0	-5.8	-5.4	-5.1	-4.7
Mild Reform	-8.0	-6.8	-8.6	-8.9	-8.4	-8.0	-13.8
Trade Deficit /GDP							
Substantial Reform	-5.2	-3.4	-2.5	-1.5	0.4	-0.7	-1.1
Excluding Mexico	-5.6	-3.5	-3.6	-3.1	-0.7	-1.5	-1.9
Moderate Reform	-8.8	-8.6	-7.1	-6.4	-7.1	-6.0	-4.4
Mild Reform	-6.2	-9.9	-7.5	-7.8	-6.4	-6.4	-3.2

Source: Thomas and Nash (1991), Table 5-1.

Policy Research Working Paper Series

	Title	Author	Date	Contact for paper
WPS2124	Social Exclusion and Land Administration in Orissa, India	Robin Mearns Saurabh Sinha	May 1999	G. Burnett 82111
WPS2125	Developing Country Agriculture and The New Trade Agenda	Bernard Hoekman Kym Anderson	May 1999	L. Tabada 36896
WPS2126	Liberté, Egalité, Fraternité: Exploring the Role of Governance In Fertility Decline	Monica Das Gupta	May 1999	M. Das Gupta 31983
WPS2127	Lifeboat Ethic versus Corporate Ethic: Social and Demographic Implications of Stem and Joint Families	Monica Das Gupta	May 1999	M. Das Gupta 31983
WPS2128	Learning Outcomes and School Cost-Effectiveness in Mexico: The PARE Program	Gladys Lopez Acevedo	May 1999	M. Geller 85155
WPS2129	Agricultural Extension: Generic Challenges and Some Ingredients for Solutions	Gershon Feder Anthony Willett Willem Zijp	May 1999	P. Kokila 33716
WPS2130	Deep Integration, Nondiscrimination, and Euro-Mediterranean Free Trade	Bernard Hoekman Denise Eby Konan	May 1999	L. Tabada 36896
WPS2131	Efficiency Wage and Union Effects In Labor Demand and Wage Structure in Mexico: An Application Of Quantile Analysis	William F. Maloney Eduardo Pontual Ribeiro	May 1999	T. Gomez 32127
WPS2132	A Regime-Switching Approach to Studying Speculative Attacks: A Focus on European Monetary System Crises	Maria Soledad Martinez Peria	June 1999	A. Yaptenco 38526
WPS2133	Resolution of Corporate Distress: Evidence from East China's Financial Crisis	Stijn Claessens Simeon Djankov Leora Klapper	June 1999	R. Vo 33722
WPS2134	Interlinkage, Limited Liability, and Strategic Interaction	Kaushik Basu Clive Bell Pinaki Bose	June 1999	M. Mason 30809
WPS2135	Hungary's Integration into European Union Markets: Production and Trade Restructuring	Bartlomiej Kaminski	June 1999	L. Tabada 36896

Policy Research Working Paper Series

	Title	Author	Date	Contact for paper
WPS2136	An Empirical Analysis of Competition, Privatization, and Regulation in Telecommunications Markets in Africa and Latin America	Scott J. Wallsten	June 1999	P. Sintim-Aboagye 38526
WPS2137	Globalization and National Development at the End of the 20th Century: Tensions and Challenges	Andrés Solimano	June 1999	D. Cortijo 84005
WPS2138	Multilateral Disciplines for Investment-Related Policies	Bernard Hoekman Kamal Saggi	June 1999	L. Tabada 36896
WPS2139	Small States, Small Problems?	William Easterly Aart Kraay	June 1999	K. Labrie 31001
WPS2140	Gender Bias in China, the Republic Of Korea, and India 1920–90: Effects of War, Famine, and Fertility Decline	Monica Das Gupta Li Shuzhuo	June 1999	M. Das Gupta 31983
WPS2141	Capital Flows, Macroeconomic Management, and the Financial System: Turkey, 1989–97	Oya Celasun Cevdet Denizer Dong He	July 1999	L. Nathaniel 89569